The first two sums in the right-hand member of Eq.(3) represent the error introduced on account of the fact that the values utilized in the computations are determined approximately in the preceding stages, while the calculations according to Eq.(1) are connected with the necessity of rounding off the values. The remaining last terms of the right-hand member of expression (3) represent the error of approximation at step h. Formula (1) makes it possible to compute the values of the requisite function with precision up to some t-th term of the Taylor series, and therefore upon expanding the quantities $Y(x_n + \alpha_{ki}h)$, $Y(x_n + h)$ in power series about the point x_n, and appropriate transformations, the general expression for the round-off and approximation error (3) may be represented in the form:

$$\delta(x_n+h) = \sum_{k=0}^{k=p} \sum_{i=1}^{i=m_k} h^k c_{ki} \delta^{(k)}(x +\alpha \ h) + \sum_{\mu=t}^{\mu=t+1, \ \dots} (K_\mu^{-1})\frac{h^\mu}{\mu!}Y^{(\mu)}(x_n),$$

$$(4)$$

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where $k=p$ $i=m_k$

$$K_\mu = \sum_{k=0}^{} \sum_{i=1}^{} c_{ki} \alpha_{ki}^{\mu-k} (\mu - k + 1)(\mu - k + 2) \dots (\mu - k + k) \quad (5)$$

The coefficient K_μ defines the error in the coefficients of the derivatives of the terms of the expansion of the value of the requisite function $\overline{Y}(x_n+h)$ as determined by Eq.(1) in terms of a power series about the point x_n. If the solution of the given differential equation is determined at each step by N different formulae of the form (1) differing from each other by various combinations of the values of the coefficients α_{ki} utilized, then, in the general case, at each step the N different computational formulae with differing values of the approximation and round-off error make it possible to compute N different values of the requisite function $Y_\nu(x_n+h)$. On the basis of Eqs. (1) and (4) one writes the system of algebraic equations:

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$$Y_\nu(x_n + h) = \bar{Y}(x_n + h) + \sum_{k=0}^{k=p} \sum_{i=1}^{i=m_k} h^k \delta^{(k)}(x_n + \alpha_{ki}h) +$$

$$+ \sum_{\mu=t}^{\mu=t+1,\ldots} (K_{\nu\mu}^{-1}) \frac{h^\mu}{\mu!} \bar{Y}^\mu(x_n) \qquad (6) \quad \checkmark$$

The system of linear algebraic equations (6) allows one to find a new approximation to $\bar{Y}(x_n+h)$ using $N-1$ unknown values of δ_{ki}, $\bar{Y}^\mu(x_n)$. The example considered deals with increasing the precision of the results of the numerical integration of ordinary differential equations of the first order, when the value of the requisite function and its first derivative are known at the points x_n, x_{n-1}, x_{n-2}. In that case the differential equation may be solved by means of 109 different extrapolation and interpolation formulae. By using these formulae at each step it Card 5/6

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is possible to compute different values of $Y_\nu(x_n + h)$ and to write a system of equation of the form (6). The system of linear algebraic equations thus obtained makes it possible to find the new approximate value of $\overline{Y}(x_n + h)$ by the use of the unknowns δ_n, δ_{n-1}, δ_{n-2}, δ'_n, δ'_{n-1}, δ'_{n-2}, δ'_{n+1},

$\overline{Y}_n^{II}$, $\overline{Y}_n^{(III)}$, ..., $\overline{Y}_n^{(102)}$.

Abstractor's note: Complete translation.

Card 6/6

13 R

37743

S/196/62/000/009/001/018
E114/E184

AUTHOR: Gol'tsov, N.A.

TITLE: Determination of error in numerical integration of
              differential equations by the extrapolation-
              interpolation method

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika,
              no.9, 1962, 5-6, abstract 9 A27. (Nauchn. tr. Mosk.
              tekhnol. in-t legkoy prom-sti, no.20, 1961, 211-215)

TEXT: Formulae for numerical integration of ordinary
differential equations by the extrapolation-interpolation method
are of the following form:

$$Y(x_n + h) = \sum_{k=0}^{p} \sum_{i=1}^{m_k} h^k C_{ki} Y^{(k)} (x_n + \alpha_{ki} h), \qquad (1)$$

$m_k = m_0, m_1, m_2, \ldots, m_p,$ where p is the order of magnitude of
the highest derivative of the required function, which was used
in the calculations; m_k - number of derivatives of the k-th order

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Determination of error in numerical...

of accuracy used in the calculations; C_{ki} - coefficients indicating the weight of the derivatives. The total error in calculating the required function is given as a difference in the form:

$$\delta_j^{(k)} = Y_j^k - \bar{Y}_j^{(k)} \tag{2}$$

where: Y_j^k - quantities calculated by means of Eq.(1) and figuring in the calculations; $\bar{Y}_j^k$ - the true value of the quantities used in the calculations. Based on Eq.(2), we obtain:

$$Y^{(k)}(x_n + \alpha_{ki}h) = \delta^{(k)}(x_n + \alpha_{ki}h) + \bar{Y}^{(k)}(x_n + \alpha_{ki}h), \tag{3}$$

$$\delta(x_n + h) = Y(x_n + h) - \bar{Y}(x_n + h). \tag{4}$$

By substituting Eqs. (1) and (3) into Eq.(4) a general expression is obtained for the error corresponding to an increment h:

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$$\delta(x_n + h) = \sum_{k=0}^{p} \sum_{i=1}^{m_k} h^k C_{ki} \delta^{(k)} (x_n + \alpha_{ki} h) \; +$$

$$+ \sum_{k=0}^{p} \sum_{i=1}^{m_k} h^k C_{ki} \bar{Y}^{(k)} (x_n + \alpha_{ki} h) - \bar{Y} (x_n + h) \qquad (5)$$

The first two sums in the right hand part of Eq.(5) represent the error which occurs because the values used in the calculations were previously determined only approximately, and because the calculations using Eq.(1) necessitate rounding-off the calculated values. The remaining terms of the right-hand part of Eq.(5):

$$\sum_{k=0}^{p} \sum_{i=1}^{m_k} h^k C_{ki} \bar{Y}^{(k)} (x_n + \alpha_{ki} h) - \bar{Y} (x_n + h) = Q \qquad (6)$$

represent the error through the approximation for the increment.
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The items forming the error due to approximation can be expanded by powers relative to x_n:

$$Q = \sum_{k=0}^{p} \sum_{i=1}^{m_k} h^k C_{ki} \sum_{\mu=0} \frac{(\alpha_{ki}h)^{\mu}}{\mu!} \bar{Y}^{(k+\mu)}(x_n) - \sum_{\mu=0} \frac{h^{\mu}}{\mu!} \bar{Y}^{(\mu)}(x_n) \quad (7)$$

If formula (1) allows calculating the values of a function $Y(x_n + h)$ with accuracy up to the t-th term of Taylor's series, then in expression (7) all the terms containing derivatives up to the (t-1)-th order will disappear:

$$Q = \sum_{\mu}^{\mu=t,t+1} \sum_{k=0}^{p} \sum_{i=1}^{m_k} h^k C_{ki} \frac{(\alpha_{ki}h)^{\mu-k}}{(\mu-k)!} \bar{Y}^{(\mu)}(x_n) - \sum_{\mu=t} \frac{h^{\mu}}{\mu!}\bar{Y}^{\mu}(x_n). \quad (8)$$

To make it more explicit and convenient the expression for the error of approximation (8) is re-written:

$$Q = \sum_{\mu=t} (K_{\mu} - 1) \frac{h^{\mu}}{\mu!} \bar{Y}^{(\mu)}(x_n), \quad \text{where}$$

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$$K_\mu = \sum_{k=1}^{p} \sum_{i=1}^{m_k} c_{ki} \alpha_{ki}^{\mu-k} (\mu - k + 1)(\mu - k + 2) \ldots (\mu - k + k).$$

The coefficient K_μ determines the distortion of the coefficients of the derivative terms in the expansion by powers relative to the cusp, x_n, of the expression for the value of the sought function $Y(x_n + h)$, found with the help of Eq.(1). The general expression for the error of approximation and rounding-off in the increment is given in the form:

$$\delta(x_n + h) = \sum_{k=0}^{p} \sum_{i=1}^{m_k} h^k c_{ki} \delta^{(k)} (x_n + \alpha_{ki}h) +$$

$$+ \sum_{\mu=t} (K_\mu - 1) \frac{h^\mu}{\mu!} Y^\mu (x_n).$$

The found expression for the errors of approximation and
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rounding-off allows us to compare computation formulae of the
same order of accuracy, to check and make more accurate the
results of numerical integration of the differential equations.
There is 1 reference.

[Abstractor's note: Complete translation.]

Card 6/6

AUTHOR: Gol'tsov, N. A.

TITLE: On a procedure for the numerical integration of differential
            equations reducible to the form $Y' = f(Y)$

TEXT: A procedure is considered for the numerical integration of differen-
tial equations of the form

$$Y' = f(Y); \quad Y'(X_0) = Y_0'.$$

in which the accumulation of errors occurs along the axis of abscissae (the axis
of the values of the argument). The value of the unknown function Y_{n+1} is deter-
mined from extrapolation formulae. This calculated value of the function is then
considered as its actual value and one then finds with greater precision the value
of the argument $x_n + h_n'$, at which the unknown function takes the value Y_{n+1}. The

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On a procedure for the numerical...

computational formula obtained for determining the value of the higher approxima-
tion step h'_n is of the form

$$h'_n = \frac{2hf(Y_n)}{f(Y_n) + f(Y_{n+1})}.$$

I. F. Shelikhova

[Abstracter's note: Complete translation]

Card 2/2

44368
S/044/62/000/012/034/049
A060/A000

16 6500

AUTHOR: Gol'tsov, N.A.

TITLE: Generalized procedure for the derivation of formulae for the inter-
            polation-extrapolation method of numerical integration of ordinary
            differential equations

PERIODICAL: Referativnyy zhurnal, Matematika, no. 12, 1962, 32, abstract 12V167
            (Nauchn. tr. Mosk. tekhnol. in-t legkoy prom-sti", 1961, no. 23,
            281 - 286)

TEXT: A procedure is considered for the derivation of formulae for the nu-
merical integration of differential equations of the P-th order

$$\frac{d^P Y}{dx^P} = f\left(X, Y, Y', Y'', \ldots, Y^{(P-1)}\right)$$

for $Y(X_0) = Y_0$, $Y'(X_0) = Y_0'$, ..., $Y^{(P-1)}(X_0) = Y_0^{(P-1)}$. It is indicated
that the problem of deriving the formulae reduces to the determination of the co-
efficients of the finite functional series of the form

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$$y^s (X_n + \beta h) \sum_{K=0}^{K=r} \sum_{i=1}^{i=m} h^{K-s} c_{Kis} y^{(K)} (X_n + \alpha_{Kis} h) ,$$

$$s = 0, 1, 2, \ldots, r; \quad m_K = m_0, m_1, m_2, \ldots, m_r ,$$

where r is the order of the highest derivative, m_K is the number of derivatives
of the same order. The coefficients of the series are found from the system of
equations

$$\sum_{K=0}^{K=r} \sum_{i=1}^{i=m_K} c_{Kis} \frac{\alpha_{Kis}^{l_3-K-1}}{(l_s - K - 1)!} = \frac{\beta^{l_s-s-1}}{(l_s - s - 1)!}$$

$$l_s = 1, 2, 3, \ldots, \quad m_0 + m_1, + \ldots + m_p, \ldots, q_s;$$

q_s is the greatest number of equations for which the solution of the system can
be found. An example is cited. There are 6 references.

I.F. Shelikhova

[Abstracter's note: Complete translation]

Card 2/2

S/196/62/000/018/001/017
E194/E155

AUTHOR: Gol'tsov, N.A.

TITLE: Concerning a circuit of series-connected impedances
            at voltage resonance

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika,
            no.18, 1962, 7-9, abstract 18 A 38. (Nauchn. tr. Mosk.
            tekhnol. in-t legkoy prom-sti, no.23, 1961, 287-290).

TEXT: The possibilities of resonant circuits for trans-
forming alternating voltages are considered. Figs. 1 and 2 give
diagrams of resonant circuits for transforming the voltage U_1
into the voltage $U_2 = KU_1$ on a load $Z = R + jX$. For the
transformation circuits shown in Figs 1 and 2, the voltages U_{21}
and U_{22} on the load Z are given in the form:

$$U_{21} = U_1 K_1; \qquad U_{22} = U_1 K_2, \tag{1}$$

where: .

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Concerning a circuit of series- ...

$$K_1 = \sqrt{\frac{R_{31}^2 + X_{31}^2}{(R_{L1} + R_{31})^2 + (X_{L1} - X_{31})^2}} \; ; \quad K_2 = \sqrt{\frac{R_{32}^2 + X_{32}^2}{R_{32}^2 + (X_{32} - X_{c2})}} \; ;$$

$$R_{31} = \frac{R X_{c1}^2}{R^2 + (X_{c1} - X)^2} \; ; \quad X_{31} = \frac{X_{c1}(R^2 + X^2) - X X_{c1}^2}{R^2 + (X_{c1} - X)^2} \; ;$$

$$R_{32} = \frac{(R + R_{L2}) \cdot (RR_{L2} - XX_{L2})}{(R + R_{L2})^2 + (X + X_{T2})^2} + \frac{(X + X_{L2}) \cdot (RX_{L2} + XR_{L2})}{(R + R_{L2}) + (X + X_{L2})^2} \; .$$

$$X = \frac{(R + R_{L2}) \cdot (RX_{L2} + XR_{L2})}{(R + R_{L2})^2 + (X + X_{L2})^2} - \frac{(X + X_{L2}) \cdot (RR_{L2} - XX_{L2})}{(R + R_{L2})^2 + (X + X_{L2})^2} \; .$$

A condition of transforming the voltage U_1 into the vol   e $_2$

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by means of the circuits of Figs. 1 and 2 is that the coefficients K_1 and K_2 must be of the required values. In Eqs. (1) and (2), K_1 and K_2 are termed the transformation coefficients. The laws of change of the reactances X_c and X_L necessary to ensure transformation of the voltage U_1 with a given value of the coefficient K and resonance voltage on change in the load Z are determined. Values of the reactances X_{L1} and X_{c1} (see Fig.1) are determined from the equation:

$$K_1 = \frac{\sqrt[4]{R_{э1}^2 + X_{э1}^2}}{R_{L1} + R_{э1}} , \qquad X_{L1} = X_{э1} ,$$

which are converted to the form:

$$X_{L1} = X_{э1}, \quad a_4 X_{c1}^4 + a_3 X_{c1}^3 + a_2 X_{c1}^2 + a_1 X_{c1} + a = 0,$$

where:
$$a_4 = K_1^2 (R_{L1}^2 + 2R_{L1}R + R^2) - R^2 - X^2 ;$$

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Concerning a circuit of series- ... $\begin{array}{l} S/196/62/000/018/001/0 \\ E194/E155 \end{array}$

$$a_3 = 2X (R^2 + X^2) - 4K_1^2 R_{L1} X (R_{L1} + R) \; ;$$

$$a_2 = 2K_1^2 R_{L1}(R_{L1}R^2 + 3R_{L1}X^2 + R^3 + RX^2) - (R^2 + X^2)^2 \; ;$$

$$a_1 = - 4K_1^2 R_{L1}^2 X (R^2 + X^2) \; ;$$

$$a = K_1^2 R_{L1}^2 (R^4 + 2R^2 X^2 + X^4).$$

The reactances X_{L2} and X_{c2} of the circuit of Fig.2 determined from the equations:

$$K_2 = \sqrt{1 + \left(\frac{X_{32}}{R_{32}}\right)^2} \; , \qquad X_{c2} = X_{32} \; ,$$

which are converted to the form:

$$b_4 X_{L2}^4 + b_3 X_{L2}^3 + b_2 X_{L2}^2 + b_1 X_{L1} + b = 0,$$

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$$X_{c2} = \frac{XX_{L2}^2 + (X^2 + R^2) X_{L2} + R_{L2}^2 X}{(R + R_{L2})^2 + (X + X_{L2})^2}$$

where

$$b_4 = X^2 - R^2(K_2^2 - 1); \qquad b_3 = 2X(X^2 + R^2);$$

$$b_2 = (X^2 + R^2)^2 + 2X^2 R_{L2}^2 - 2R \left[X^2 R_{L2} + RR_{L2} \right] \times (K_2^2 - 1);$$

$$b_1 = 2XR_{L2}^2 (X^2 + R^2);$$

$$b = R_{L2}^4 X^2 - \left[X^2 R_{L2} + RR_{L2}(R + R_{L2}) \right]^2 (K_2^2 - 1).$$

Values of the reactances X_{c1}, X_{L1}, X_{c2} and X_{L2} can be determined after the solution of fourth-power algebraic equations. Neglecting reactor losses and taking $R_L = 0$ for the case of pure resistive load $Z = R$, approximate expressions for the reactances may be found from the equations:
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$$X_{c1} \cong \frac{R}{\sqrt{K_1^2 - 1}} ; \qquad X_{L2} \cong \frac{R}{\sqrt{K_2^2 - 1}} ;$$

$$X_{L1} \cong \frac{R \sqrt{K_1^2 - 1}}{K_1^2} \qquad X_{c2} \cong \frac{R \sqrt{K_2^2 - 1}}{K_2^2} .$$

The resonant circuits of Figs. 1 and 2 are particularly convenient
for voltage transformation over wide ranges to supply loads of
constant or only slightly varying power.
4 references.

Card 6/7

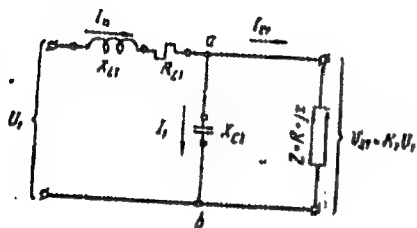Concerning a circuit of series- ...   S/196/62/000/018/001/017
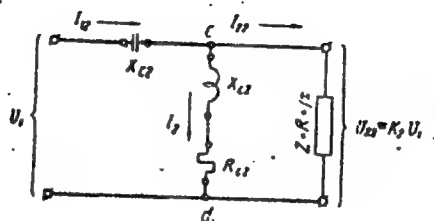E194/E155

Fig.1   Fig.2

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E200/E185

16.6500

AUTHOR: Gol'tsov, N.A.

TITLE: On a procedure for the numerical integration of differential equations reducible to the form $Y' = f(Y)$

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.20, 1962, 6-7, abstract 20 A 34. (Nauchn. tr. Mosk. tekhnol. in-t legkoy prom-sti, no.23, 1961, 278-280).

TEXT: A method is set forth for the numerical integration of ordinary differential equations $Y' = f(Y)$. Extrapolation formulae are used to determine the values of the requisite function Y_{n+1}. This calculated value of the function is then considered as its actual value and the value of the argument $x_n + h_n$ at which the requisite function takes the value Y_{n+1} is then corrected.

The methods of Runge-Kutta, Adams-Shtermer, and others, developing Euler's idea on the numerical integration of differential equations, now in use for that purpose made it possible, for a

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sufficiently small value of the interval h, to approach the
approximate new value of the requisite function $Y(x_n + h)$. In
calculating every successive value of the requisite function there
occurs an accumulation of errors along the ordinate axis (along
the axis of values of the function, see Fig.1). The calculated
values of the function differ from those which may be taken by the
requisite function. This fact impels one to seek a procedure for
the numerical integration of differential equations in which the
accumulation of errors would occur along the axis of abscissas
(along the axis of values of the argument, see Fig.2), and not
along the axis of values of the function. The use of such a
procedure would ensure an approximate solution distinguished by
the fact that for every argument the value of the function may be
determined with an error, but along all the calculated values of
the requisite function there will be no actually inexistent
(extraneous) ones. In other words, if according to the calculati-
ons the function $Y(x_n + h)$ occurs at $x_n + h$, in actuality this
value of the function will occur at $x_n + h'$. In that case the
axis of abscissas (the axis of the argument x) turns out to be

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deformed beyond the assumptions adopted in the calculations.
Fig.1 gives a representation of the requisite function in the
presence of error accumulation from calculations along the axis
of abscissas. To use the "intuitive" terminology adopted above,
in the use of Euler's method and its adaptations it is the axis
of ordinates (the axis of the values of the function) that is
deformed, as shown in Fig.2.
1 reference.

[Abstractor's note: Complete translation.]

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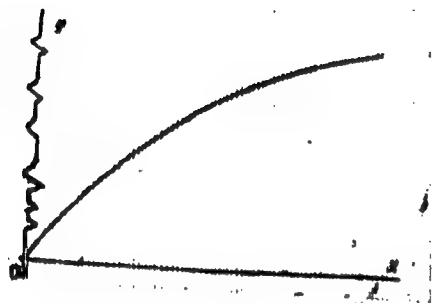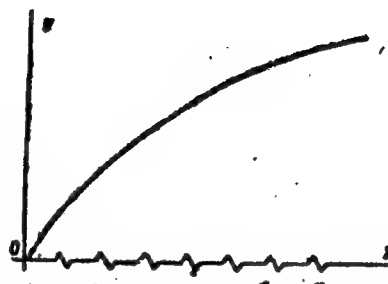On a procedure for the numerical...   S/196/62/000/020/002/021
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Card 4/4   Fig.1   Fig.2

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E200/E185

AUTHOR: Gol'tsov, N.A.

TITLE: A generalised procedure for deriving formulae for the
             extrapolation-interpolation method of numerical
             integration of ordinary differential equations

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika,
             no.20, 1962, 6, abstract 20 A 33. (Nauchn. tr. Mosk.
             tekhnol. in-t legkoy prom-sti, no.23, 1961, 281-286).

TEXT: A method is considered of deriving formulae for the
numerical integration of differential equations

$$\frac{d^{e}y}{dx^{P}} = f(X, Y, Y', Y'', \ldots, Y^{(P-1)})$$

when
$$Y(X_{o}) = Y_{o}; \quad Y'(X_{o}) = Y'_{o}, \ldots, Y^{P-1}(X_{o}) = Y^{P-1}.$$

It is assumed that the existence of the requisite integral is
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established in advance. For the numerical integration it is
proposed to utilise a function series of the form

$$Y^{(s)}(X_n + \beta h) = \sum_{\substack{K = s \\ i = 1}}^{\substack{m_k \\ r - s}} h^{K-s} c_{Kis} Y^{(K)} (X_n + \alpha_{Kis} h);$$

$m_K m_o, m_1, m_2, \ldots, m_p, \ldots, m_r$;

$S = 0, 1, 2, \ldots, p - 1, \ldots, r - 1,$

where: r is the order of the highest derivative occurring in the
calculations; m_K is the number of derivatives of the same order
occurring in the calculations. The formulae of the extrapolation-
interpolation methods of numerical integration for the differential
equations being considered are represented in the form of a finite
function series whose coefficients are determined in the simplest

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way from the systems of equations obtained as result of equating
the sums of the coefficients of the derivatives of the same order
after expanding the terms of the power series, to the
coefficients of the corresponding first terms of the Taylor series:

$$\sum_{\substack{K=s \\ i=1}}^{\substack{m_K \\ \ell_s - 1}} c_{Kis} \cdot \frac{a_{Kis}^{\ell_s - K - 1}}{(\ell_s - K - 1)!} = \frac{1}{(\ell_s - 1)!} \cdot$$

$$s = 0, 1, 2, \ldots, p - 1, \ldots, r - 1;$$

$$\ell_s = s + 1, s + 2, s + 3, \ldots, q_s;$$

where q_s is the greatest number of equations for which the
solution of the system can be found. The problem of deriving the
formulae for the numerical solution of ordinary differential

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equations of the order P thus formed reduces to the determination of the coefficients C_{Kis} of the series by means of algebraic equations. When the coefficients α_{Kis} are preselected the coefficients C_{Kis} of the series are determined from the systems of algebraic equations which are in that case linear. As an application of the elaborated method, a table is constructed in which, besides the known formulae, new ones are given.
5 references.

[Abstractor's note: Complete translation.]

Card 4/4

GOL'TSOV, N.A., kand.tekhn.nauk, dotsent

Network for the series connection of resistances in the presence of voltage resonance. Nauch.trudy MTILP no.23:287-290 '61.

(MIRA 15:9)

1. Kafedra elektrotekhniki Moskovskogo tekhnologicheskogo instituta legkoy promyshlennosti.
(Electric networks)

GOL'TSOV, N.A., kand. tekhn. nauk. dotsent

Equation for a generalized electric machine with a nonsinusoidal
distribution of the magnetomotive force of winding. Nauch.
trudy MTILP no.24:271-275 '62.   (MIRA 16:7)

1. Kafedra elektrotekhniki Moskovskogo tekhnologicheskogo
instituta legkoy promyshlennosti.
                    (Electric machinery)

GOL'TSOV, N.A., kand. tekhn. nauk, dotsent

More precise definition of the results in the numerical integration of differential equations. Nauch. trudy MTILP no.26:264-269 '62.   (MIRA 17:5)

1. Kafedra elektrotekhniki Moskovskogo tekhnologicheskogo instituta legkoy promyshlennosti.

GOL'TSOV, V.

Meeting of friends. Grazhd.av.13 no.6:30 Je '56.   (MIRA 9:9)
(Russia--Relations (General) with Czechoslovakia)(Czechoslovakia--
                                    Aeronautics, Commercial)

GOL'TSOV, V.

Test pilots. Grazhd.av.13 no.7:8-9 Jl '56.   (MLRA 9:9)
(Airplanes--Testing)

Gol'tsov, V.

84-5-5/42

AUTHOR: Gol'tsov, V.

TITLE: Growth of Creative Effort (Rastet tvorcheskiy pod"yem)

PERIODICAL: Grazhdanskaya Aviatsiya, 1957, Nr 5, pp. 5-6 (USSR)

ABSTRACT: Sverdlovsk airport has become a large airway junction in recent years. A new terminal and a hotel have been built. The equipment meets all modern requirements and permits receiving and maintaining, day and night, all types of heavy transport aircraft including the Tu-104. Passenger turnover has tripled, and freight volume increased 5 times in 1956 over the 1946 figures. During the exceptionally stormy and unstable winter of 1956/57 the airport was never closed thanks to good airfield maintenance. The most efficient crews are those headed by M. Ivanov, A. Semenets, and A. Manin. Head of Shipping Department Ye. Slutskiy is credited with 91.5 per cent of average payload attained. The most efficient technical brigades are those under F. Vorob'yev, L. Syskov, F. Payvin, and G. Morozov. Engineer L. Nikanorov is credited with introducing a special crane for removing engines from the Il-12 and Il-14 aircraft, which increases labor productivity by 40 per cent. In collaboration with F. Vorob'yev he designed a reducer, which shortens the fueling time of the Tu-104 by 15 to 20 minutes. G. Morozov's brigade utilized the hydraulic wheel-retractors of the Il-14 aircraft for trimming the Li-2 plane. A special articulated wrench designed by L. Syskov permits replacing

Card: 1/3

84-5-5/42

Growth of Creative Effort (cont.)

the spark-plugs of the AU-82U engine in half the time. The flight unit of the airport overfulfilled the quota of flight hours by 11.2 per cent and that of ton/kilometers by 14.6 per cent for the first quarter of 1957. The flight productivity quota also was overfulfilled. The maintenance workshops saved 30,700 rubles by cost reduction. The beginning of the second quarter in Sverdlovsk airport is characterized by the following percentages of quota fulfillments: volume of shipment in tons - 119, freight turnover - 114, passenger turnover - 150. Winners of the socialist competition were teams under Medvedev, Troitskiy, and Kushnir. At present the cost of a ton/kilometer is still 4 per cent higher than the quota. The support of the Territorial Administration, specifically of its Economic Planning Department, is invoked to reduce cost. The writer argues that because of increase of the flying personnel and the reduction in wage funds, an overexpenditure of 3 kopecks per ton/kilometer results. The consistency of planning, therefore, is questioned. The volume of mail planned for Sverdlovsk airport by the West Siberian Territorial Administration considerably exceeds the needs of the Ministry of Communications. In addition, during the slush period, when many airports linked with Sverdlovsk are

Card: 2/3

84-5-5/42

Growth of Creative Effort (cont.)

closed, the mail is forwarded by rail. Tariffs and fares on main routes operated from Sverdlovsk have been reduced, which is expected to result in an increase of freight and passenger turnover and lead to a further improvement of efficiency indices.

AVAILABLE: Library of Congress

Card: 3/3

GOL'TSOV, V.

84-9-33/47

AUTHOR: Gol'tsov, V., Special Correspondent

TITLE: That Which Was Left Undone (O tom, chto ne dovedeno do kontsa)

PERIODICAL: Grazhdanskaya Aviatsiya, 1957, Nr 9, pp. 31-32

ABSTRACT: The article criticizes conditions at the Riga and Vil'nyus airports and gives some information on these two airports. The Riga airport is located NW of the city; traffic has increased considerably during the last several years and daily tens of planes arrive and depart from this place. Recently the airport received the Il-14 planes. From here passengers may fly directly to Moscow, Leningrad, Tallin, Vil'nyus, Kaliningrad, Minsk, Tbilisi, Mineral'nyye Vody, Odessa, etc., and also to Copenhagen. The airport is equipped with overnight facilities for transit (stopover) passengers, and has a nursery, a restaurant, and a post and telegraph office. The city agency of the Aeroflot is on Raynis Boulevard in the central section of the city. Buses run to the airport every 10-15 minutes. The passenger traffic is particularly heavy during summer months, when thousands of people visit Riga's beaches. The article complains that the city agency of the Aeroflot has only two employees: Pavel Alekseyevich Rudakov, chief of the agency, and M. Pleshanova (a woman), the cashier. As a result,

Card: 1/2

84-9-33/47

endless. Another disadvantage is that the airport, in suit of fulfilling the ton/km quota, prefers the transport of cargo for long distances and cares less for passengers travelling to nearby localities. The procedure of selling tickets involves red tape: it is necessary to fill a form, register, make calculations in the books and write out the ticket. calculations of differe...

GOL'TSOV, V. (gor. Odessa).

Principal merit; Report about an agency. Grashd. av. 14 no.3:27-
28 Mr '57.   (MLRA 10:6)

(Aeronautics, Commercial)

GOL'TSOV, V. (Riga)

Young specialists. Grazhd.av. 14 nc.7:11-12 Jl '57.   (MLRA 10:9)
(Aeronautics--Study and teaching)

84-58-2-19/46

AUTHOR: Gol'tsov, V.

TITLE: A Civilized Way of Work (Kul'tura truda)

PERIODICAL: Grazhdanskaya aviatsiya, 1958, Nr 2, pp 11-13 (USSR)

ABSTRACT: The article describes in some detail the work organiza-
                tion, equipment, and methods of overhauling An-2 planes
                in an unidentified maintenance and repair establishment.
                Special sorting carts, designed to carry sets of dis-
                assembled parts have been introduced. These carts follow
                a predetermined route from one work place to another for
                certain operations. Another set of carts and boxes carry
                standardized sets of tools used at certain work places.
                There is a moving line for washing operations following
                the disassembly. Labor-consuming operations are mecha-
                nized, work places are well equipped and organized. Much
                effort has been spent to attain a neat appearance of the
                shop and individual work places. On-the-job training of
                personnel, as well as its general education, is well
                organized and greatly encouraged. The result is charac-
                terized by the following percentages of quota overful-
                fillments for 1957: in overall output - by 28.5 percent,

Card 1/2

84-58-2-19/46

A Civilized Way of Work

in manufacture of replacement parts in the plant - by 30.6 percent, in the number of manufactured items - by 8.3 percent, in the efficiency increment - by 22 percent, in reduction of cost - by 7.5 percent. Accrual of above-the-quota savings amounted to 1,019,000 rubles. The text is accompanied by a number of photographs, one of which shows an overall interior view of the hangar with airframes, the other 9 presenting individual items of equipment.

AVAILABLE: Library of Congress

Card 2/2

1.   Airplanes - Maintenance - USSR   2.   AN-2(Airplane)-USSR

GOL'TSOV, V.

In the sky of Moldavia. Grazhd. av. 15 no. 7:17-18 Jl '58.
(MIRA 11:7)

(Moldavia--Aeronautics in agriculture)

GOL'TSOV, V.; BALABANOV, P.

To petroleum workers of the Caspian Sea. Grazhd.av 17 no.9:18-19
S '60.
(MIRA 13:9)

1. Spetsial'nyye korrespondenty zhurnala "Grazhdanskaya aviatsiya."
(Caspian Sea region—Aeronautics, Commercial)

GOL'TSOV, V.

Airport is a construction site. Grazhd.av. 18 no.1:26-27 Ja '61.
(MIRA 14:3)

1. Spetsial'nyy korrespondent zhurnala "Grazhdanskaya aviatsiya",
Moskva—Stalinabad.
(Stalinabad—Airports)

GOL'TSOV, Y. (Murmansk)

Winged sledges. Grazhd.av. 18 no.8:24-25 Ag '61. (MIRA 14:8)

1. Spetsial'nyy korrespondent zhurnala "Grazhdanskaya aviatsiya".
(Kola Peninsula--Aeronautics in wildlife census)

GOL'TSOY, V.

Aside main airlines. Grazhd.av. 19 no.7:24 Jl '62.
(MIRA 15:8)

(Tula—Aeronautics, Commercial)

GOL'TSOV, V.

They say that conscience does not bother you. Grashd.av. 19
no.9:15 S '62.   (MIRA 16:1)
                    (Airplanes—Maintenance and repair)

GOL'TSOV, V.; VDOVENKO, B.

Happy journey. Grazhd.av. 19 no.10:14-15 0 '62.

(MIRA 16:2)

(Aeronautics, Commercial—Flights)

VOLOKITIN, I.; GOL'TSOV, V.

Stormy front. Grazhd. av. 20 no.3:4-5 Mr '63.
(MIRA 16:4)

(Air pilots)

GOL'TSOV, V.

Seconds of life. Grazhd. av. 20 no.6:4-5 Je '63.   (MIRA 16:8)

(Air pilots)

GOL'TSOV, Vladimir, komandir korablya; MAKAROV, Fedor Timofeyevich;
BORDACHEV, Vladimir, komandir samoleta, komsomole's;
NAYDENOVA, Valentina; IVANOV, Boris Mikhaylovich;
KULIKOVA, Galina, inzh; KARPYCHEVA, Alla, inzh.-ekonomist;
GRIGOR'YEV, G.

By the call of conscience. Grazhd. av. 21 no.6:12-13 Je '64.
                    (MIRA 17:8)

1. Sekretar' podrazdeleniya Vsesoyuznogo Leninskogo kommunisti-
cheskogo soyuza molodezhi pri Bykovskom ob"yedinennom aviapodraz-
delenii (for Gol'tsov). 2. Zamestitel' komandira Bykovskogo
ob"yedinennogo aviapodrazdeleniya po politchasti aviatsii
spetsial'nogo primeneniya (for Makarov). 3. Chlen komsomol'skogo
shtaba "Za kul'turnoye obsluzhivaniye passazhirov" pri Bykovskom
ob"yedinennom aviapodrazdelenii (for Naydenova). 4. Nachal'nik
linaynoy ekspluatatsionno-remontnoy masterskoy Bykovskogo
ob"yedinennogo aviapodrazdeleniya (for Ivanov). 5. Chleny
komiteta Vsesoyuznogo Leninskogo kommunisticheskogo soyuza
molodezhi, Bykovskoye ob"yedinennoye aviapodrazdeleniye (for
Kulikova, Karpycheva). 6. Spetsial'nyy korrespondent zhurnala
"Grazhdanskaya aviatsiya" (for Grigor'yev).

GOL'TSOV, V. (Kalinovka, Kurskoy oblasti)

From the forward edge. Grazhd. av. 21 no.8:18-19 Ag '64.
(MIRA 18:4)

1. Spetsial'nyy korrespondent zhurnala "Grazhdanskaya aviatsiya".

GOL'TSOV, V.

The steppe expanse. Grazhd. av. 21 no.11:12-13 N '64.
(MIRA 18:3)

1. Spetsial'nyy korrespondent zhurnala "Grazhdanskaya aviatsiya."

VOLOKITIN, I.; GOL'TSOV, V.; YEREMIN, S.; SEMENOV, M.

Photo, events, people. Kryl. rod. 16 no.3:20-21 Mr '65.
(MIRA 18:5)

1. Spetsial'nyye korrespondenty zhurnala "Grazhdanskaya aviatsiya"
(for Volokitin, Gol'tsov).

GOL'TSOV, V.

A man who has flown around the planet. Grazhd. av. 21 no. 12:
3 D '64.   (MIRA 18:12)

VOLOKITIN, I.; GOL'TSOV, V.

That's how it was. Grazhd. av. 22 no.1:4-7 Ja '65.

(MIRA 18:11)

1. Spetsial'nyye korrespondenty zhurnala "Grazhdanskaya aviatsiya".

GOL'TSOV, V. A.   Cand. Tech. Sci.

Dissertation: "Calculation of Secondary-Electron Multipliers in Respect to Frequency."
Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov, 14 Mar 47.

SO: Vechernyaya Moskva, Mar, 1947 (Project #17836)

GCL'TSCV, V. A. ed.

A collection of articles on the technology of vacuum tubes. Moskva, Gos. energ. izd-vo, 1948. 139 p. (49-51242)

TK7872.73C6

RYABOV, R.A.; GOL'TSOV, V.A.

Effect of structure and heat treatment on hydrogen penetration in steels. Trudy Ural. politekh. inst. no.92:101-109 '59.
(MIRA 13:12)

(Steel—Hydrogen content)

S/137/61/000/012/090/149
A006/A101

AUTHORS: Gol'tsov, V. A., Ryabov, R. A.

TITLE: On flake-preventing treatment of steels

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 12, 1961, 43, abstract
             12D348 ("Tr. Ural'skogo politekhn. in-ta", 1961, v. 114, 134 - 137)

TEXT: On the basis of studies performed on the diffusion rate of H in steel
of different structure, the authors explain the positive effect of "oscillation"
heating of 30 XH3A (30KhNZA) steel to eliminate flake sensitivity. It is proved
that hydrogen permeability for products of the second stage of austenite decompo-
sition is by about 20% higher at 600 - 650°C than for products of the first stage
of decomposition; it is also shown that carbide coagulation increases hydrogen
permeability. Therefore oscillating heating of 30KhNZA type steel at 300 - 600°C,
entails the elimination of H from the steel and removes flake sensitivity.

                                              T. Fedorova

[Abstracter's note: Complete translation]

Card 1/1

S/126/62/013/006/003/018
E111/E353

AUTHORS: Gol'tsov, V.A., Gel'd, P.V. and Kotik, E.M.

TITLE: Influence of phase work-hardening of austenite on
its permeability to hydrogen

PERIODICAL: Fizika metallov i metallovedeniye, v. 13, no.6,
1962, 860 - 868

TEXT: Cyclic $\gamma \to \alpha \to \gamma$ heat-treatment stabilizes and
hardens austenite and has an anomalous effect on the coefficient
of self-diffusion of iron. The present investigation was under-
taken because it was not clear how such treatment affected the
permeability of steels to hydrogen. Permeability was studied on
Fe-Ni (12.6 and 25% Ni) alloys at 280 - 1 020 °C. It was found
that the permeability of α-phase with a martensitic structure
changes exponentially with temperature up to the A_s point,
the activation energy being 17-19 kcal/mole. Equilibrium
austenite has activation energies for the hydrogen-penetration
process of 28-31 kcal/mole; the value depends little on com-
position. The reverse martensite process, leading to the forma-
tion of hardened austenite, greatly complicates the hydrogen-
Card 1/2

Influence of ....

S/126/62/013/006/005/018
E111/E352

migration stage and causes the activation energy to increase.
The degree of phase work-hardening of austenite and the acti-
vation energy for hydrogen penetration are clearly related,
apparently because fracture of mosaic blocks and growth of
internal stresses complicates the hydrogen diffusion stage in
austenite. It is thus possible that the development of intra-
granular boundaries leads to an increase in defect concentrations
which act as hydrogen "traps" with a higher energy barrier as
regards movement along them. The first $\gamma \to \alpha \to \gamma$ transformation
cycle has an especially great effect on permeability to hydrogen;
later, the effect is usually negligible. Activation energy
changes appreciably if not less than 50% $\gamma \to \alpha$ transformation is
achieved in the direct martensite transformation; at 75% the
effects are especially great. There are 4 figures and 1 table.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im.
                S.M. Kirova (Ural Polytechnical Institute im.
                S.M. Kirov)

SUBMITTED: November 16, 1961

Card 2/2

ACCESSION NR: AR4041600   S/0137/64/000/005/I019/I020

SOURCE: Ref. zh. Metallurgiya, Abs. 5I121

AUTHOR: Gel'd, P. V.; Gol'tsov, V. A.; Sklyuyev, P. V.; Kvater, L. I.

TITLE: Influence of coagulation of carbides on water permeability of steel

CITED SOURCE: Sb. Vliyaniye vodoroda na sluzhebn. svoystva stali Irkutsk,
1963, 140-147

TOPIC TAGS: steel, water penetration, hydrogen penetration, carbide, carbide
coagulation

TRANSLATION: Regularities of hydrogen permeability of steel 80KhNIM and
steel 34KhNIM with initial structures of martensite, bainite and perlite in
interval of 280 - 900° with pressure drop of 10- 760 mm Hg for 20, 40, 60 and
100 hours were studied. Water permeability of steel with initial structure of
martensite and bainite annealed at 650°, turns out to be higher than for steel

Card 1/2

ACCESSION NR: AR4041600

with platy separations of carbides with intial perlitic structure as a result of coagulation of carbides. Maximum water permeability of steel 80KhNlM annealed at 650° is observed during holding ⩾ 20 hr of samples with initial perlite structure and ⩾ 40 hr of samples with initial structure of martensite and bainite at the same temperature. Conversion of platy form of carbides into granular noticeably increases water permeability in even greater measure, the higher the content of C in steel. For increase of water permeability of steel it is considered expedient first to carry out decomposition of austenite up to obtaining of martensite of lower bainite, and then to increase temperature to 650 – 680° for the purpose of formation of structure of granular cementite.

SUB CODE: MM   ENCL: 00

Card 2/2

S/0148/63/000/004/0098/0103

TITLE: Influence of ... effects on hydropermeability of metals

SOURCE: ... Chernaya metallurgiya, no. 4, 1963, 98-103

TOPIC TAGS: ... hydropermeability of metals, hydrogen extrac... ... steel, active hydrogen, hydrogen, ... diffusion mobility

ABSTRACT: ... strong influence on ... ... diffusion mobility. Orig. art. has 5 ...

ASSOCIATION: ...

SUB CODE: 00   DATE ACQ: 11Jun63   ENCL: 00
                   NO REF SOV: 007   OTHER: 001

GEL'D, P.V.; GOL'TSOV, V.A.; SHTEYNBERG, M.M.

Effect of intraphase hardening on hydrogen absorption in manganese austenite. Fiz. met. i metalloved. 16 no.3:394-402 S '63.
(MIRA 16:11)

1. Ural'skiy politekhnicheskiy institut imeni Kirova.

GEL'D, P.V.; GOL'TSOV, V.A.; RYABOV, R.A.; SHTEYNBERG, M.M.

Interaction of the parameters of hydrogen absorption by precipitation-hardened austenite. Fiz. met. i metalloved. 16 no.4:610-611 O '63.

(MIRA 16:12)

1. Ural'skiy politekhnicheskiy institut imeni Kirova.

ACCESSION NR: AP4033703   ,   s/0148/64/000/004/0119/0123

AUTHOR: Gel'd, P. V.; Gol'tsov, V. A.; Shteynberg, M. M.; Kosheleva, V. Yu.

TITLE: The effect of Plastic Deformation and Subsequent Annealing on the Rate of Hydrogen Penetration in Austenite

SOURCE: IVUZ. Chernaya metallurgiya, no. 4, 1964, 119-123

TOPIC TAGS: plastic deformation, annealing, interrupted quenching, Fe Ni alloy, induction furnace, hydrogen permeability, Ni austenite, activation energy, pre exponential factor, polyterm, crystal structure imperfection, complicated migration

ABSTRACT: The authors investigated the diffusion of hydrogen in an Fe-29% Ni alloy melted in a 60 kg induction furnace for the purpose of determining the water permeability of work-hardened austenite. The specimens were reduced by 25% since this degree of reduction intensified the work-hardening of Ni austenite. Quenching from 365 C affects permeability and a disruption appears on the polytherm below which the process is characterized by activation energy and a pre-exponential factor corresponding to equilibrium austenite. Annealing at continuously

Card   1/3

ACCESSION NR: AP4033703

increasing temperatures lowered the parameters of austenite permeability, as calcu-
lated, from the high-temperature sections of the polytherm to values which approxi-
mated those calculated from the low-temperature sections. In order to obtain data
which would supplement earlier studies of the imperfections accounting for the
anomalous changes in hydrogen permeability, the authors investigated the recovered
hardness during a 30-minute annealing of 10 x 10 x 2.5 specimens reduced by 27%.
At 500 C hardness was recovered by 18% and activation energy of permeability by
32%. The authors conclude that the recovery of diffusion characteristics occurs
within a lower temperature range than the recovery of hardness. Hydrogen perme-
ability parameters, as affected by plastic deformation and annealing, have an
exponential relationship $p_o \backsim exp E$ analogous to that determined in earlier studies
for phase-hardened austenite. Experimental results are explained in the light of
an earlier theory on crystal lattice imperfections which affect diffusion by en-
training hydrogen and making migration in their vicinity difficult. Orig. art.
has:

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Urals Polytechnic Institute)

SUBMITTED: 28Jul63   DATE ACQ: 07May64   ENCL: 00

Card 2/3

ACCESSION NR: AP4033703

SUB CODE: MM   NO REF SOV: 009   OTHER: 001

Card   3/3

AUTHOR: Shteynberg, M. M.; Gol'tsov, V. A.; Gel'd, P. V.; Zhuravlev, L. G.

TITLE: A change in the mechanical properties of austenite and the parameters of its hydrogen permeability as a result of phase cold hardening in $\gamma \to \varepsilon \to \gamma$ conversion

SOURCE: Fizika metallov i metallovdeniye, vol. 17, no. 3, 1964, 469-470

TOPIC TAGS: austenite, hydrogen permeability, mechanical properties, phase cold hardening, $\gamma \to \varepsilon \to \gamma$ conversion

ABSTRACT: In a previous paper, the authors have shown that phase cold hardening in a $\gamma \to \varepsilon \to \gamma$ conversion increases substantially the activation energy and the pre-exponential multiplier of the process of hydrogen penetration in manganese austenite. Similar properties of hydrogen permeability may be satisfactorily explained provided that the defects of the crystal lattice are contained in hydrogen "traps," in the vicinity of which the elementary act of diffusion becomes complex. A description of the experiment is given; the results are plotted on a graph; the result of phase conversion changed not only the mechanical, but also the diffusion properties of austenite. Changes may also be expected in many of its other physical properties.

Card 1/2

ACCESSION NR: AP4029007

The concept of "phase cold hardening" should be considered in a much broader form than simple mechanical hardening during phase conversions. Orig. art. has: 1 figure.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S.M. Kirova (Ural Polytechnical Institute)

SUBMITTED: 10Jly63   DATE ACQ: 27Apr64   ENCL: 00

SUB CODE: ML.   NO REF SOV: 002   OTHER: 000

Card 2/2

L 01795-66   EWT(m)/EWP(w)/EWP(c)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c)   IJP(c)   JD/HW/
EWG(m)

ACCESSION NR: AP5020970   UR/0148/65/000/008/0102/0107

AUTHOR: Kosheleva, V. Yu.; Gel'd, P. V.; Gol'tsov, V. A.

TITLE: Effect of phase hardening on the hydrogen permeability of an iron-nickel
alloy

SOURCE: IVUZ. Chernaya metallurgiya, no. 8, 1965, 102-107

TOPIC TAGS: iron nickel alloy, metal hardening, hydrogen, permeability mea-
surement, hydrogen permeability, solid mechanical property, temperature depend-
ence, electric resistance, crystal lattice defect

ABSTRACT: A study was made of the temperature dependence (20-1110 C) of the
hydrogen permeability, the yield and tensile strengths, and the hardness of an
Fe-Ni alloy (28.6% Ni) in equilibrium and hardened conditions. Phase hardening
of the Ni austenite significantly increased its hydrogen permeability and the ener-
gy of activation E of this process; at 350-390 C, E ($\approx$45 kcal/mol) was about
1.5 times greater than E for austenite in equilibrium conditions. Recovery of the
diffusion characteristics of the alloy was especially intense in the 400-500 C
range. Increasing the annealing temperature further to 700-850C had little effect
Card 1/2

L 01795-66

ACCESSION NR: AP5020978

on permeability and E. Phase hardening significantly increased yield strength, tensile strength and hardness, but had only a little effect on the modulus of elasticity of the alloy. Recovery of mechanical characteristics developed strongly at ~600-700C. The increase in electric resistance with temperature increase of the phase hardened austenite stopped at about 440 C. The coincidence of the recovery of electric resistance and hydrogen permeability is attributed to the possible hypersensitivity of these processes to similar defects. The mechanical and diffusion characteristics are sensitive to different defects in the crystal lattice. The first is apparently determined by the subgrain structure while the second is determined by the nature and distribution of vacancies, dislocations and other similar defects in the crystal lattice. Orig. art. has: 3 figures

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnical Institute)

SUBMITTED: 11Jul64   ENCL: 00   SUB CODE: MM, SS

NR REF SOV: 008   OTHER: 001

Card 2/2

L 8064-66 EWT(m)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) LJP(c) JD/HW

ACC NR: AP5027136   SOURCE CODE: UR/0126/65/020/004/0524/0530

AUTHOR: Simakov, Yu. P.; Gel'd, P. V.; Steynberg, M. M.; Golikov,
Ye. A.

ORG: Ural Polytechnic Institute im. S. M. Kirov (Ural'skiy polite-
khnicheskiy institut)

TITLE: The effect of ordering on the hydrogen permeability of Ni₃Mn

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 4, 1965, 524-530

TOPIC TAGS: permeability, hydrogen, nickel alloy, manganese alloy,
ordered alloy

ABSTRACT: The alloy was melted in vacuum in an induction furnace from
technically pure components and was poured (also in vacuum) into ingots
with a cross section 40 x 40 mm. The ingots were annealed for one hour
at 1100°C and forged into rods (30 x 30 mm). The alloy contained
24.82% manganese, 0.04% silicon, 0.05% carbon, 0.03% phosphorous, and
0.006% sulfur. The degree of ordering of the samples, subjected to
different treatments, was evaluated on the basis of the results of
dilatometric and magnetic tests. The hydrogen permeability was studied
on film type samples by the steady state flow method. These studies
showed that the ordering temperature of the alloy agreed well with

Card 1/2   UDC: 519.12+669.788

5004-66

ACC NR: AP5027036

literature data near 520°. The kinetics of the ordering process of the alloy was further studied at various temperatures. Before the experimental tests, the diffusion samples were heated to 1000°, held at this temperature for one hour, quenched in water, and then ordered for 12 (or 100) hours at 400°. The hydrogen permeability was studied during stepwise heating (from 350 to 950°) and cooling. On heating from 350 to 400°, the hydrogen permeability of Ni$_3$Mn increases noticeably. Above 400° the temperature coefficient of hydrogen penetration rate decreases sharply, and near 450° returns to zero. Further increase in the temperature brings an increase in the hydrogen permeability, which reaches a minimum at 510-520°, that is near T$_c$. Further heating of the alloy is accompanied by a rapid increase in the hydrogen penetration rate. However, between 480 and 900°, there is observed a marked decrease in the hydrogen permeability, replaced at higher temperatures by an exponential rise of the hydrogen permeability with temperature. The anomalous changes in the hydrogen permeability of the alloy during heating and cooling are bound up with the destruction and formation of long-range order, and are determined by the kinetic characteristics of these processes. An ordered alloy has a higher hydrogen permeability than an unordered one. Above the temperature of the "order-disorder" transition, the rate of hydrogen penetration depends on the temperature in a complicated fashion and obeys an exponential

Card 2/3

L 8094-66
ACC NR: AP5027136

3

relationship only above 900°. It can by assumed that the anomalous changes in the hydrogen permeability above T_c are bound up with the nature of the short-range order, and with the degree of the defective-ness of the lattice of the alloy. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 30Nov64/ ORIG REF: 011/ OTH REF: 005

Card 3/3

AP CODE: UR/0126/66/021/001/0148/0150

AUTHOR: Gel'd, P. V.; Kimstach, Yu. L.; Steinberg, M. M.; Gol'tsov, V. A.

ORG: Ural Polytechnic Institute im. S. M. Kirov (Ural'skiy politekhnicheskiy institut)

TITLE: Effect of ordering on the hydrogen absorption of the alloys of iron with cobalt

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 1, 1966, 148-150

TOPIC TAGS: ordered alloy, iron alloy, cobalt alloy, second order phase transition, hydrogen, temperature dependence

ABSTRACT: The statistical theory of the diffusion (and absorption) of interstitial atoms in the lattices of the alloys undergoing ordering processes claims that the anomalies of the temperature dependence of the diffusion coefficient D in the neighborhood of the temperature T_0 of the order $-$ disorder transformation differ depending on whether the phase transformation is of the first or of the second kind. In the former case a sharp change in D and in the activation energy E of the process if to be expected whereas in the latter case only a change in E is to be expected. To verify whether the conclusions of this theory apply to alloys in which ordering occurs as a phase transformation of the second kind, the authors investigated hydrogen absorption in FeCo alloys (FeCo, FeCo + 1.8% V, Fe + 60% Co) by means of techniques

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UDC: 548.53

L 09706-66
ACC NR: AP6005148

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described earlier (Simkov, B. F., et al., FMM, 1965, 20, 4, 524; Ryabov, R. A.,
et al., FMM, 1957 , 4 , 291 , No. 7 , 75). Repeated measurements of the rate
of penetration of hydrogen into the austenitic alloy FeCo showed that in the 700-
720°C temperature region which is sufficiently close to T_0, the curve of the temp-
erature dependence of hydrogen theory undergoes a sharp inflection; at tempera-
tures below T_0 the alloy's ability to absorb hydrogen decreases much more rapidly;
thus there is no discontinuity in the temperature dependence of hydrogen absorption
for the FeCo alloy in the neighborhood of T_0 and the inflection of the experimental
curve is due to the change in diffusion parameters. Similar results were obtained
for the alloys FeCo ... Co ... Co2 Co. In all these cases, the degree of short-
range order was found to increase on cooling of the alloy below T_0. Hence, when dis-
cussing the temperature dependence of hydrogen absorption for $T < T_0$, it is pointless
to speak of the activation energy of the process as a quantity characterizing a fixed
... indicate that during the ordering of
FeCo alloys the ... coefficient of hydrogen absorption markedly increases.
It is important to note ... pattern was observed for Ni3Mn (an alloy in
which the ordering process takes place ... transformation of the first kind);
ordering led to an increase in its hydrogen absorption and decrease in its tempera-
ture coefficient. Thus, the pattern of variation in the ability to absorb hydrogen in
the neighborhood of T_0 essentially depends on whether the ordering process is a phase
transformation of the first or second kind. It is worth noting that a distinctive
change in the rate of hydrogen absorption was observed between 350 and 500°C during

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ACC NR: AP0003160

the study of both the equiatomic (Fig. 1) and other FeCo alloys; as is known, it is
exactly within this range of temperatures that anomalies in various other physical
properties of the alloys have previously been observed. This phenomenon may be
associated with the ordering reaction; at any rate, it deserves further investigation.
Orig. art. has: 1 figure and 1 formula.

SUB CODE: 11, 13, 20/ SUBM DATE: 23Mar65/ ORIG REF: 007/ OTH REF: 001

GOL'TSOV, V.S., inzh.; ZGRZHEBLOVSKIY, E.A., inzh.

Effect of the location of the grounding of discharges in mountainous regions on the operation of automatic block systems.
Avtom., telem. i sviaz' 5 no.3:40-41 Mr '61.   (MIRA 14:9)

1. Laboratoriya signalizatsii i svyazi Omskoy dorogi (for Gol'tsov). 2. Laboratoriya energosnabzheniya Omskoy dorogi (for Zgrzheblovskiy).
              (Electric railroads—Signaling—Block system)
                      (Lightning protection)

ZHELTUKHOV, O.I.; GOL'TSOV, V.S.

Our methods in servicing automatic equipment in railroad
stations. Avtom., telem. i sviaz' 9 no.3:29-31 Mr '65.
(MIRA 18:11)

1. ? \mestitel' nachal'nika Omskoy distantsii Zapadno-Sibirskoy
dorogi (for Zheltukhov). 2. Starshiy insh. Omskoy distantsii
Zapadno-Sibirskoy dorogi (for Gol'tsov).

ACC NR: AT7004079   SOURCE CODE: UR/3244/66/000/004/0069/0071

AUTHOR: Kharlampovich, G.D.; Gol'tsova, L.F.

ORG: Urals Polytechnic Institute (Ural'skiy politekhnicheskiy institut)

TITLE: Preparation of stabilizers for plastics, synthetic resins, and petroleum products using methylnaphthalenes derived from coal tar

SOURCE: Dnepropetrovsk. Khimiko-tekhnologicheskiy institut. Khimicheskaya tekhnologiya, no. 4, 1966, 69-71

TOPIC TAGS: naphthalene, rubber stabilizer, chemical stabilizer, stabilizer additive, antioxidant additive

ABSTRACT: 1-Methyl-2-naphthol, 1-methyl-4-naphthol, and 1-methyl-8-naphthol were prepared and their antioxidative properties were studied to determine the possibility of the use of these coal tar derivatives as readily available stabilizers of aviation fuels, lubricants, resins, polymers, and food products. The antioxidative activity of the methylnaphthols along with naphthols and flexzone were studied by measuring the induction period in air oxidation of paraffin at 170 ± 0.1C with an air consumption rate of 6 ml/g min. The induction period was determined by iodometric titration of the peroxides formed. The results for a 0.1% concentration of the additives are given in the table. The induction period decreased

Card 1/2

UDC: none

SUB CODE: 07/ SUBM DATE: no...
ATD PRESS: 5114

Card 2/2

L 04250-67   EWT(m)/T   DJ

ACC NR: AP6005398   (N)   SOURCE CODE: UR/0413/66/000/001/0153/0153

AUTHOR: Yutkin, L. A.; Gol'tsova, L. I.

ORG: none

TITLE: A method for obtaining superhigh hydraulic pressures and a device for implementing this method. Class 58, No. 119074

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1966, 153

TOPIC TAGS: superhigh pressure, hydraulic pressure amplifier, spark shock wave

ABSTRACT: This Author Certificate presents a method for obtaining superhigh hydraulic pressures in accordance with Author Certificate No. 105011. In order to provide constantly increasing pressures, spark discharges alternating in a given sequence are generated in a previously compressed and successively compressible liquid. The device is made in the form of a cylindrical hydraulic chamber either divided into sections or without sections. One end of the chamber is connected to pipes which feed the liquid, and the other end of the chamber is connected to a receiver. The spark gaps are positioned in this receiver and are aligned either along the chamber at a specified distance from one another or are placed in each section of the chamber. To provide a shifting of the liquid to the receiver side,

Card 1/2   UDC: 621.226.621.7.044.4

L 04250-67

ACC NR: AP6005398

check valves are used, mounted between the sections. The sections of the chamber
are divided by baffles with holes instead of by valves. The shape of the device
is controlled by the need to impart a direction to the shock wave and to prevent the
shifting of the liquid to the receiver side. The sections are given the shape
of mutually intersecting parabolas (in cross section). To provide a given sequence
of firing by the discharges of the whole family of spark gaps, a tumbler switch or
a firing device is used.

SUB CODE: 13/   SUBM DATE: 15Apr50

Electrohydraulic Effect 18

Card 2/2   fv

GOL'TSOVA, R.D.; MEYSEL', M.N.

Effect of ionizing radiation on amination, deamination and transmination processes. Dokl. AN SSSR 118 no.1:75-77 Ja-F '58.   (MIRA 11:3)

1. Institut mikrobiologii Akademii nauk SSSR. Predstavleno akademikom V.N.Shaposhnikovym.
        (AMINATION)   (X-RAYS--PHYSIOLOGIAL EFFECT)
        (CELL METABOLISM)

PETROV, K.A.; NIFANT'YEV, E.Ye.; GOL'TSOVA, R.G.

Interesterification of methyl phosphonites.   Zhur.ob.khim.
31 no.7:2367-2370 Jl '61.   (MIRA 14:7)
          (Phosphonic acid) (Esterification)

PETROV, K.A.; NIFANT'YEV, E.Ye.; GOL'TSOVA, R.G.

Interesterification of monoethyl methylphosphinite with glycols.
Zhur.ob.khim. 31 no.7:2370-2373 Jl '61.   (MIRA 14:7)
          (Phosphinic acid) (Esterification) (Glycols)

S.3630

AUTHORS: Petrov, K.A., Nifant'ev E.Ye., Gol'tsova, R.G.
and Gubin, G.V.

TITLE: Investigating the chemical properties of acid bis-
esters of ethylene glycol and methylphosphine acid

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 8, 1961, 2732-2735

TEXT: In previous publications, the authors have shown that acid bis-
methylphosphonites could be prepared by esterification of the mono-
ethylester of methylphosphinic acid with glycols. In the present in-
vestigations they studied some reactions of the simplest of these com-
pounds, obtained by esterification with ethylene glycol. The follow-
ing reactions were studied. 1) Oxidation of bismethylphosphinite
[Abstractor's note: Called subsequently "the starting product"] with
nitrogen oxides to the corresponding ester of bismethylphosphonic acid,
according to scheme (NI). The obtained product is highly hygroscopic
and reacts as a dibasic acid. 2) The reaction of the starting product

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with sulfur; they did not succeed with the product itself, only with
its sodium salt which was obtained from the product and sodium methoxide
in dry methyl alcohol and could be isolated. (N2). 3) The reaction with
dibutyldisulfide and methylthiocyanate (N3). 4) chlorination of the
starting product which was successful with chlorine, but not with
SO_2Cl_2; only a monochloride was obtained with chlorine which was oxi-
dized to a corresponding phosphonic acid (N4). 5) Aminomethylation with
tetraethyldiaminomethylene; with equimolar amounts of reagents they ob-
tained monomethyl diethylamino phosponate (N5). In the last two reactions
the two phosphonic groups showed a different reactivity, only one of them
taking part in the reaction. There are 5 references: 3 Soviet-bloc and
2 non-Soviet-bloc. The references to the English-language publications
read as follows: L.W. Daasen, J.Am.Chem.Soc. 80,5301, 1958. E.K. Fields,
J.Am. Chem.Soc. 74, 1528, 1952.

SUBMITTED: July 27, 1960

Card 2/2

PETROV, K.A.; NIFANT'YEV, E.Ye.; GOL'TSOVA, R.G.

Re-esterification of phosphinothioic and phosphonothioic esters
with alcohols. Zhur. ob. khim. 31 no.10:3174-3177 O '61.
(MIRA 14:10)
(Phosphonothioic acid) (Phosphinothioic acid) (Alcohols)

PETROV, K.A.; NIFANT'YEV, E.Ye.; GOL'TSOVA, R.G.; BELAVENTSEV, M.A.; KORNEYEV, S.M.

Esterification of phosphorous and phenylphosphinic acids. Zhur.-ob.khim. 32 no.4:1277-1279 Ap '62.   (MIRA 15:4)
          (Phosphorous acid) (Phosphinic acid) (Esterification) .

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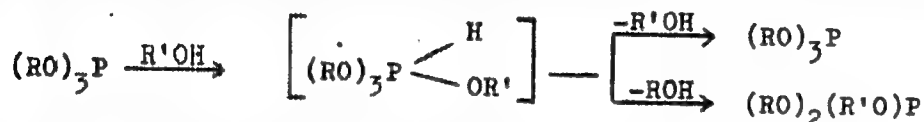D204/D307

AUTHORS: Petrov, K.A., Nifant'yev, E.Ye., and Gol'tsova, R.G.

TITLE: Peresterification of phosphites and phosphinites with
             substituted alcohols

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 11, 1962,
             3716 - 3720

TEXT: The peresterification of the simpler esters of phosphorous
acid and methyl-, phenyl-, and dipropylphosphinous acids was stu-
died, using amino-ethanol, halo- and cyanhydrins, furfuryl and te-
trahydrofurfuryl alcohols and with methyl cellosolve since the li-
terature concerning such reactions is very scarce. In a typical ex-
periment a mixture of the ethyl ester of the phosphorous (or phos-
phinous) acid and the substituted alcohol was heated, under an
inert atmosphere, to 150-185°C, until the calculated quantity of
EtOH distilled off. The reaction mixture was held at that tempera-
ture for a further 10-15 min, at 20-40 mm Hg, and was then distil-
led to give the corresponding phosphite or phosphinite of the sub-
stituted alcohol. Na or H_3PO_4 were used as catalysts. Furfuryl-di-
Card 1/2

Peresterification of phosphites ...   S/079/62/032/011/008/012
                                        D204/D307

propyl- and - cyanoethyldipropylphosphinites were quantitatively
oxidized to the corresponding phosphonates with a current of dry
O_2. The rates and yields of the peresterifications were lower when
the substituents in the alcohol were more electrophilic and when
they were closer to the OH-carrying carbon atom. These data are in
agreement with the mechanism showed earlier by the authors, i.e.:

$$(RO)_3P \xrightarrow{R'OH} \left[(RO)_3P < {}^{H}_{OR'}\right] - \left[\begin{array}{l} \xrightarrow{-R'OH} (RO)_3P \\ \xrightarrow{-ROH} (RO)_2(R'O)P \end{array}\right.$$

Those initial phosphites and phosphinites which possessed more
strongly electrophilic substituents reacted more readily with the
alcohols. Thus di-β-chloroethylphosphite and di-β-fluoroethylphos-
phite were reacted with decyl alcohol, at respectively 140-150°C
and 120-130°C, in the presence of H_3PO_3, to give didecylphosphite
in 80 and 85 % yields. There is 1 table.

SUBMITTED: December 14, 1961
Card 2/2

43312
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D204/D307

5.3650

AUTHORS: Petrov, K.A., Nifant'yev, E.Ye., Gol'tsova, R.G.,
Shchegolev, A.A., and Bushmin, B.V.

TITLE: Synthesis and peresterification of diphenyl phosphite

PERIODICAL: Zhurnal obshchey khimii, v. 32, no. 11, 1962,
3725 - 3727

TEXT: The interactions of diphenyl phosphite with aliphatic alco-
hols were studied since the alcoholysis of diethyl and other simple
phosphites (to higher phosphites) and phosphinites requires, in
some cases, inconveniently high temperatures (this journal, p. 3710
Dialkyl phosphites $(RO)_2POH$, where $R = C_4H_9$, iso-C_5H_{11}, C_6H_{13}, C_8
H_{17}, C_9H_{19}, $C_{10}H_{21}$, $ClCH_2CH_2$, and $C_2H_5OC(O)CH_2$, were prepared in
91-96 % yields by adding 2 moles ROH to 1 mole $(PhO)_2POH$ and heat-
ing for 3-8 hours at 100°C, in the presence or absence of catalyst
(Na). The high reactivity of diphenyl phosphite as compared to
those of simple dialkyl phosphites is ascribed to (1) the existence

of diaryl
and meta-cresols

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ACCESSION NR: AT4033987   S/0000/63/000/000/0068/0072

AUTHOR: Petrov, K. A.; Nifant'yev, E. Ye.; Gol'tsova, R. G.; Korneyev, S. M.

TITLE: Polymers containing phosphorus. IX. Synthesis of acid polyalkylene phosphites, phosphates and thionphosphates

SOURCE: Geterotsepny*ye vy*sokomolekulyarny*ye soyedineniya (Heterochain macro-molecular compounds); sbornik statey. Moscow, Izd-vo "Nauka," 1963, 68-72

TOPIC TAGS: polymer, phosphorus containing polymer, polyalkylene phosphite, poly-alkylene phosphate, polyalkylene thionphosphate, linear acid polyphosphite, poly-phosphite synthesis, spatially discreet glycol, polyphosphite oxidation, poly-, phosphite alkylation

ABSTRACT: Linear acid polyphosphites were synthesized by reesterification of di-ethyl phosphite with spatially discreet glycols, then converted to polyalkylene phosphates by NO_2 oxidation or to thionphosphates by reaction with S. Successful syntheses (procedure described) were obtained with pentandiol-1,5, hexandiol-1,6, diethylene glycol, triethylene glycol, diethanolamine, pentafluoropentandiol-1,5, 1,4-3,6-dianhydrosorbitol, and p-dihydroxymethylbenzene. A neutral polythion-phosphite was obtained by alkylation of an ammonium salt of polyalkylenethionphos-phoric acid. "We would like to thank S. A. Pavlova, associate at the INEOS AN SSSR,

Card   1/2

ASSOCIATION: AT4033987

for her help in determining the molecular weights." Orig. art. has: 2 graphs, 1
table and 3 chemical equations.

ASSOCIATION: none

SUBMITTED: 19Jun62   DATE ACQ: 30Apr64   ENCL: GO

SUB CODE: OC   NO REF SOV: 012   OTHER: 003

Card 2/2

PETROV, K.A.; NIFANT'YEV, E.Ye.; GOL'TSOVA, R.G.; SOLNTSEVA, L.M.

Phosphorus-containing polymers. Part 7: Synthesis of polyphosphites
and polyphosphimites by glycolysis of amides of trivalent phosphorus
acids. Vysokom.soed. 5 no.11:1691-1695 N '63.   (MIRA 17:1)